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Abstract

Assessment of computer literacy needs from the perspective of potential workforce development is an important part of an educational program involving adult learners. About 22 percent of adults currently entering the labor market possess the technology skills that are required for 60% of new jobs. This paper describes the training provided to tutors and trainers of adult learning centers in Hampton Roads Virginia. Results showed that the trainees, prior to the training, had limited access to computer technology and needed training in incorporating computer technology in the curriculum. After the training, trainees have shown increased levels of comfort with various software, including Word Processing programs, such as MS Word, Power Point, Netscape, Hyperstudio and MS Frontpage. Training the trainers can be more effective in reaching a larger population for creating opportunities to access global information for the workforce.

Introduction

Assessment of computer literacy needs from the perspective of potential workforce development, is an important part of an educational program working with adult learners. Computers drive today's workplace and technological literacy is identified as a matter for critical concern in an information society (Warnat, 1983). Employers, therefore, seek computer literacy in almost everyone they hire. However, if training is to be provided to adult learners, it is important to consider their basic learning needs. If the needs of learners are met, they are more likely to stay with the program; otherwise the likelihood of dropping out from the program is higher (Grant & Shank, 1993). The needs assessment process can be used as the basis for developing curricula for a learning environment that are responsive to these needs.

According to recent projections, only about 22 percent of adults currently entering the labor market possess the technology skills that are required for 60% of new jobs in the year 2000 (Zuckerman, 1994). Workers who use computers on the job receive higher wages, reflecting both computer-specific and broader skills (Kusmin, 2000). A study conducted by the Wadley-Donovan Group (September, 1999) showed that companies have difficulty finding employees with the necessary computer skills. Basic computer skills are required of over 75% of office personnel; among software applications, word processing is the most required skill and knowledge of database software needs are growing as well. Employees who work at least-skilled levels will need some knowledge of operating computers if they are to move upward in the job-market. Thus, basic technology skills and knowledge are viewed as necessary employment tools for the workforce.

The next question that follows is where could adult members of the community receive the skills and knowledge needed for them to be more marketable. The adult learning centers in the study trained adults who needed literacy skills, via programs such as, adult basic education (ABE) or Graduate Equivalent Diplomas (GED) or English as a second language program (ESL). Most adult learners either go to continuing education classes offered by the local school systems or attend the local adult learning programs to acquire literacy proficiency. Adult learners in this article are referred to as those learners who are performing at minimal functional literacy levels, in other words below 4th grade reading level. The authors did a survey of adult learning centers and other continuing education programs in the community offered for adults regarding computer technology component. The needs assessment component of the survey encompassed both what teachers / trainers / tutors (at these centers) know and can do (learner proficiencies) and what the staff needed to learn and apply regarding computer technology in order to teach. This study includes a survey (Appendix 1) that can be administered to do a technology related "need assessment" of

teachers and trainers of literacy at adult learning centers who work with adult learners.

Initial survey showed that the staff members at adult learning centers themselves had limited access to computer technology and needed training in incorporating computer technology in the curriculum; be it GED (Graduate Equivalent Diploma); ABE (Adult Basic Education) or a rehabilitation program. The study, called GTE Project (General Telephone) for literacy was funded by the GTE Inc. (now known as Verizon. The project promoted workplace computer technology related skills to adult learners, to take advantage of the economic opportunities created by the increasing presence of technology. To achieve this goal, the project provided technology training to staff members, tutor trainers and teachers in order to facilitate professional development training for the trainers/tutors and their administrators.

Purpose of the Study

Three adult learning centers were selected at random to do the tutors' and trainers' basic computer knowledge and skills assessment. The purpose of the study was to assess the needs of the adult learning community related to literacy & technology. Once the needs were identified, training was provided to meet identified needs. Based on the assessment results, which indicated specific technology needs related to skills and knowledge, eight training modules (listed below) were developed for tutors and staff trainers of adult learning centers. The goal of the project was that once the needs of the staff are met related to knowledge and skills using technology in teaching literacy to adult learners, they in turn will provide on-going basic computer literacy skills to adult learners. Larger blocks of time were used for each training session to optimize effective learning. The eight modules were as follows:

Technology Training Topics

Module 1: Internet for literacy instruction
Module 2: Creative Writing to Read/ Using PowerPoint to Present
Module 3: Multimedia Authoring with HyperStudio
Module 4: Using CD-ROM Books to Develop Literature Focus Units
Module 5: Phonics Instructional Software
Module 6: Teaching Grammar, Spelling, and Vocabulary
Module 7: Reading Comprehension and Concept Mapping
Module 8: CD-ROM Electronic Portfolios

Methodology

A survey of tutors and trainers of adult learning centers was conducted in April of 1999 (Appendix 1). A descriptive research design was used for this study because the purpose was to describe and interpret participants' skills, and knowledge of computer applications before curriculum for training can be developed. The study was concerned with conditions that exist with regard to the level of computer literacy of trainers included in the training. Also knowledge of the training they received in the past was determined (Best & Kahn, 1986).

The design for the study was a one-shot case (Campbell and Stanley, 1963). The design was used as a reference point to collect information about the tutors and staff trainers' knowledge and skills of the use of computer technology for developing competencies for eight training modules. The survey was administered to the participants on the first day of training.

The training was provided on weekends at a satellite location away from workplaces of trainees. This was necessary if the trainees were to avoid problem adjusting their normal work schedule. Shelton and Jones (1996) suggest that educators need considerable training and development time outside the workday so they can concentrate on instruction and training objectives without having to deal with workplace demands.

The authors designed the instrument to obtain the data needed to achieve the purpose of the study. The questions were exploratory in nature because the staff members', tutor trainers' and teachers' previous skills and knowledge of computer applications was not known (Riedling, 1997). The questions in the survey sought to determine

participants' skills and knowledge of computer applications, and also demographic information. The obtained information assisted the technology trainers at the university to design subsequent training sessions.

The investigators used a purposive non-random sampling method to select sample for the study (Wallen and Fraenkle, 1993). All adult trainers and tutors were selected for the workshop. All participants were females.

Data Analysis

The study used a descriptive statistics to analyze the data from the exploratory survey. Frequencies and percentages were used to interpret the data. The analysis of the data revealed some specific computer skills and knowledge that the trainees wanted to learn during the training sessions.

Findings

Participants demographic information

Based on the analysis of the data the demographic information showed that all participants for the training were adults trainers. Their age ranged between 28 -50 years old. The data also showed that 40 % of the respondents had between 1-5 years teaching experience, while 60% had between 6-10 years teaching experience. Regarding educational background of the participants, 80% of the subjects had a bachelor degree, while 20% had master's degree.

Motivation to sign-up for training

The purpose for training the trainers and tutors at educational centers was to enable them to provide staff-development training at their individual sites. As an additional motivation, each participant received a nominal stipend for attending training sessions. Participants' responses varied regarding the purpose of training:

- To train other teachers and staff members at their site (60%)
- To improve their computer skills (60%)
- To understand latest literacy technology (60%)
- To improve teaching (20%)
- To develop technology based lesson plan (20%)

Results show that the primary need for the participants besides staff development was to improve their own knowledge base and skills.

Computer access and utilization

The data showed that all participants (100%) had personal computers at home, however only 60% had their computers connected to the Internet and about 85% of the participants used computers in their place of work for more than fifteen hours a week.

The data also showed that respondents used computers for word processing at their place of work on a daily basis. Only 20% of the respondents were interested in learning how to use some type of database, while another 30% were interested in learning more about the Internet search engines and e-mail systems. Another 20% indicated their interest in learning how to use the grade book, and multimedia for teaching. About 80 % of the participants reported that they would like to learn how to manage their files, and also use Windows 95/98. All trainees were interested in learning how to prepare Power Point presentation, and use software for lesson plans.

Level of comfort with computer Software

Although all the trainees acknowledged using computer technology at home, and at their place of work, it was important for the trainers to understand whether the trainees are comfortable with some or all the software they use. The data showed that only 15% of the trainees were comfortable with the use of Power Point, and only 5% indicated that they were comfortable with the use of Hyperstudio. About 1/3 of the trainees (28%) were comfortable with MS Word for word processing, while 8% were comfortable with MS Frontpage The fact that most of the trainees were tutors, the trainers were interested in knowing whether they were comfortable with the use of the Reading Software. The data showed that 23% of the trainees were comfortable with the Reading Software, and 21% were comfortable using Nestcape as a search engine. Today's employees are required to interact with technology, in order to highlight issues relating to new online literacies that are now required for efficient work practices (Searle, 1999).

Comparative Usefulness of Instructional Software

Based on their knowledge of software programs the participants had before the training, they recognized different degree of usefulness of programs for instruction. In order to learn from the trainees, so that the training could be tailored to their needs in terms of what specific software programs they considered to be useful for instruction, following results were obtained (Figure 1). It must be noted that these percentages do not reflect the potential of instructional use of these software, but the participants' perception of them.

Reading Software were considered to be most useful by the participants (33%). Reading Software included phonics and spelling software, grammar analysis programs, comprehension and vocabulary software. Word processing program, such as MS Word was viewed as next most useful program (24%). Other programs such as Power Point, Netscape, Hyperstudio and MS Frontpage were not considered as useful as Reading Programs. Given additional training and usage of these programs, it is believed that the participants would view and use these programs differently. We use technology tools based on our knowledge of the tools, once the knowledge base changes the use of the tool would change as well. Thus, if instructors have not used internet for instruction, then they may not find internet and/or search engines' optimal use in instruction.

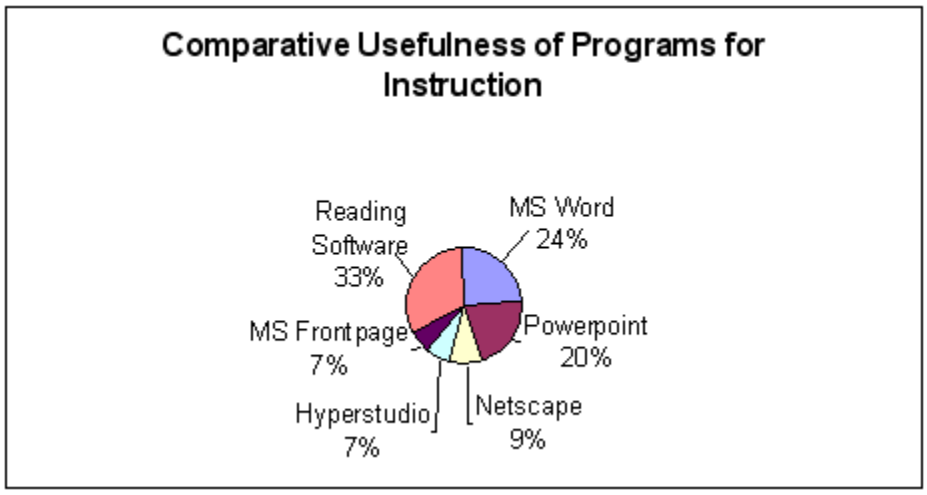
Discussion

Technology is being integrated into every aspect of workplace literacy. In order for the workforce to use technology effectively, adequate training based on specific workplace needs must be provided for trainers and tutors to strengthen digital literacy (Pianfetti, 2001). The computer training program enabled educators and administrators in adult education centers to enhance their knowledge and skills related to technology use. Built into the training was identifying adult trainers level of education, age, and their current interests and needs on the use of computer technology before designing the training modules.

The training sessions were built around smaller groups for more individualized attention. The fact that all participants have access to computer either at home or at their place of work, had also contributed to their level of interest in the training. They indicated their interest in learning more about computer software related to related to teaching basic literacy skills and for enhancing reading skills further, Hyperstudio and Power Point. They also indicated desire to enhance their skills in the use of the Web search engines, and the e-mails systems. These computer literacy needs were included in the training modules, which made the training very beneficial to the trainees.

The love of learning new information reflected the responses given by the adult trainees. At the end of the training, all participants felt that they were better prepared to participate actively and flexibly in their learning communities and the workplace after the training. By training the teachers / staff / trainers, we hoped to reach larger population since it is the 'teachers' who would provide and create opportunities to access global information for the workforce on a recurring basis for the influx of learners.

Figure 1:



Computer Training Survey Form

Please provide the following information to assist us determine how we can better provide you with the computer skills you need in future training.

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1. What is your status?
□ Tutor
□ Trainer
□ Staff
□ Other _____

2. In an average week, how many hours do you use a computer?
□ Less than 5 hours
□ 5-10 hours
□ 10 -15 hours
□ More than 15 hours

3. Have you used the Internet for accessing information?
□ Yes
□ No

4. How do you presently access the Internet and or receive e-mail?
□ Direct Internet Connection
□ America Online
□ Compuserve
□ Other Specify _____

5. What Kind of Computer do you use?
□ Macintosh
□ IBM Compatible
□ Pentium /586
□ Other Specify _____

Below are list of applications and skills. Please check the applications that you have used

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6. **Word Processing**
□ Styles □ Templates □ Forms □ Database □ Mail Merges □ Microsoft Word □ Graphics
□ Word Perfect □ Othe _____

7. **Excel**
□ Spread sheets □ Databases □ Macro □ Linking Sheets or Files
□ Other_____

8. **Files Management**
□ Networking □ Import/Export □ Copy/Cut/Paste/Delete □ Shortcuts □ Directories □ Backing-Up
□ Archives □ Briefcase.

9. **Win '95/98**
□ Start Menu □ Shortcuts □ Control Pannels □ Explorer □ Briefcase □ Installing □ Other _____

10. **E-Mail**
□ Address Book □ Mailing List □ Attachments □ Forwarding □ Discussion group □ Folders □ Other
_____

11. **Browsing**
□ Navigation Tips □ Search Tools □ Archives □ Downloading □ Word S
□ Other _____

12. **Presentation**
□ Power-Point □ ROM □ Transparencies □ Other _____

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13. Do you currently have access to adequate training?

14. Briefly explain your reason for attending this training?

15. At the end of this training, how do intend to use the skills you learned.

16. What aspect of reading, writing or educational purposes have you used the Internet for?

17. Briefly explain whether or not the training met your needs.

Demographic Information

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18. **AGE**
□ 20- 25 years □ 26 - 35 years □ 36 - 40 years □ 41 and over

19. **Gender**
□ Female □ Male

20. **Level of Education**
□ High School Diploma □ Associate Degree □ College Degree □ Graduate Degree

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Thank you for taking your time to answer these questions

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